IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION

CELLULAR COMMUNICATIONS EQUIPMENT LLC, Plaintiff, v. LG ELECTRONICS, INC., ET AL., Defendants.	**CIVIL ACTION NO. 6:14-cv-982-KNM** **LEAD CASE**

DEFENDANTS' JOINT RESPONSIVE *MARKMAN* BRIEF

TABLE OF CONTENTS

TABLE OF AUTHORITIES

CASES

STATUTES

OTHER AUTHORITIES

TABLE OF EXHIBITS

Defendants submit this Responsive *Markman* Brief addressing the disputed '966, '556,[1] and '060 patent claim terms and requesting summary judgment that '966 patent claims 5-7 and 14-17, '556 patent claims 15 and 23, and '060 patent claim 15 are invalid as indefinite.

I. INTRODUCTION

Defendants' constructions flow from bedrock principles of claim construction, including (1) the critical goal of translating technical terms into language accessible to jurors, (2) the strong presumption that every word in a claim has meaning and should not be construed as superfluous, and (3) the prohibition on construing claims to cover subject matter that a patentee surrendered during prosecution when distinguishing prior art.

Plaintiff suggests that only one of the disputed terms requires construction even though the patents concern complex technology far removed from most jurors' experience. Plaintiff repeatedly argues that "no construction" is needed, yet Plaintiff's infringement contentions reveal that Plaintiff's constructions are inconsistent with Defendants' constructions and contrary to what would be understood by a person of ordinary skill in the art ("POSA"). Construing the disputed terms is thus essential to resolve the parties' disputes and to provide the jury with appropriate guidance. *O2 Micro Int'l v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008) (vacating jury verdict: "When the parties raise an actual dispute regarding the proper scope of these claims, the court, not the jury, must resolve that dispute.").

II. LEGAL PRINCIPLES AND CANONS OF CLAIM CONSTRUCTION

A. Claim Construction Clarifies Claim Scope by Translating Technical Terms Into Understandable Language for the Jury

Claim terms presumptively should be construed to have their "ordinary and customary" meaning to a POSA at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (*en banc*). "[T]he 'ordinary meaning' of a claim term is its meaning to the ordinary artisan after reading the entire patent." *Id.* at 1321.

[1] The '556 patent is not asserted against defendant Kyocera Communications, Inc. Accordingly, Kyocera does not join Section III.C of this *Markman* Brief, concerning the '556 patent.

Given that jurors are rarely themselves POSAs, the *Markman* process is intended to provide clarity by yielding "an express construction of the material claim terms in dispute." *AFG Industries v. Cardinal IG Co.*, 239 F.3d 1239, 1247 (Fed. Cir. 2001) (emphasizing that "claim construction becomes the basis of the jury instructions"); *U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997) ("Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary, to explain what the patentee covered by the claims…."). The underlying "criterion is whether the explanation aids the court and the jury in understanding the term as it is used in the claimed invention." *Funai Elec. v. Daewoo Elecs.*, 616 F.3d 1357, 1366 (Fed. Cir. 2010).

Plaintiff's *Markman* brief ("Br.") concedes this critical translation function when discussing "bitmap"—the one term that Plaintiff proposes to construe. Plaintiff concedes that "bitmap has a well-understood ordinary meaning" to a POSA and that "the '556 patent uses the phrase according to that meaning" rather than redefining it. (Br. at 18). Nevertheless, Plaintiff argues that "bitmap" requires construction. By contrast, Plaintiff inconsistently, and incorrectly, maintains that other terms with "ordinary meanings" evident to a POSA (but not to most jurors) need no construction. Plaintiff's approach invites legal error by requiring the jury to determine the scope of the asserted claims. *O2 Micro*, 521 F.3d at 1360.

B. Claim Language Should Be Interpreted to Give Effect to Every Word

The public notice function served by patents dictates construing every word in a claim to have meaning. *See, e.g.*, *Absolute Software, Inc. v. Stealth Signal, Inc.*, 659 F.3d 1121, 1141 (Fed. Cir. 2011) (rejecting construction that would render certain language "meaningless"); *Haemonetics Corp. v. Baxter Healthcare Corp.*, 607 F.3d 776, 781 (Fed. Cir. 2010) (stressing that the public notice function would be "undermined" if courts interpreted claims to render claim language "superfluous"). Thus, disregarding claim language is "fundamental legal error." *Panduit Corp. v. Dennison Mfg.*, 810 F.2d 1561, 1576 (Fed. Cir. 1987).

C. Patent Owners Cannot Recapture Claim Scope Surrendered by Amendment or Argument During Prosecution

Patentees are not permitted to use claim construction to recapture subject matter that they surrendered during prosecution to obtain allowance of the claims being construed. This prohibition supersedes other canons such as the presumption that claims be construed to cover disclosed embodiments. "[T]he fact that claims do not cover certain embodiments disclosed in the patent is compelled when narrowing amendments are made … to gain allowance over prior art." *N. Am. Container, Inc. v. Plastipak Packaging, Inc.*, 415 F.3d 1335, 1346 (Fed. Cir. 2005).

It is a "particularly severe" problem if a proposed claim construction would render meaningless claim language that the patentee added during prosecution to distinguish prior art. *Mangosoft v. Oracle Corp.,* 525 F.3d 1327, 1330-31 (Fed. Cir. 2008) (rejecting proposed construction that "ascribe[d] no meaning" to a term: "This defect is particularly severe because Mangosoft added the word ... during prosecution to distinguish prior art."). The file history merits "substantial weight" when construing such terms, especially when the patentee's proposed construction would have the "nonsensical result" of covering the prior art that the patentee overcame with the amendment. *Board of Regents of the Univ. of Tex. Sys. v. BENQ Am. Corp.,* 533 F.3d 1362, 1369-70 (Fed. Cir. 2008); *see also Graham v. John Deere Co. of Kansas City,* 383 U.S. 1, 33 (1966) ("[C]laims that have been narrowed in order to obtain the issuance of a patent by distinguishing prior art cannot be sustained to cover that which was previously by limitation eliminated from the patent.").

Nor can claims cover territory that patentees disclaimed based on arguments during prosecution. *See, e.g.*, *N. Am. Container*, 415 F.3d at 1345 ("To overcome an obviousness rejection, the applicant distinguished his invention from the [prior art] on the basis of the latter disclosing inner walls that are 'slightly concave.' The inescapable consequence of such an argument is that the scope of applicant's claims cannot cover inner walls that are 'slightly concave.'").

III. DISPUTED TERMS AND PROPOSED CONSTRUCTIONS

A. The '966 Patent

The '966 patent concerns determination of the power at which a terminal transmits "Message 3" in the "random access procedure" for establishing a communication connection with the base station. Both the random access procedure and formulas for calculating the power of Message 3 were known in the prior art. (Def. Tutorial at 17-19). The '966 patent discloses tweaking the prior art formula for the power of Message 3. Plaintiff's constructions, however, are unrelated to this alleged improvement. Instead, they would enable Plaintiff to argue that the claims are as broad as earlier claims that the inventors surrendered during prosecution after the Patent Office indicated that additional limitations were necessary for allowance. Plaintiff is not entitled to a construction that would render the added language superfluous.

1. "wherein the second [accumulation] power control adjustment state f(i) for i=0 is initialized as: $P_{O\_UE\_PUSCH} + f(0) = \Delta P_{PC} + \Delta P_{rampup}$" / "wherein the first power control adjustment state g(i) for i=0 is initialized as: $P_{O\_UE\_PUSCH} + g(0) = \Delta P_{PC} + \Delta P_{rampup}$"

Claims	Defendants' Proposal	Plaintiff's Proposal
1, 9, 10	wherein f(0) is calculated from the values of $P_{O\_UE\_PUSCH}$, ΔP_{PC} , and ΔP_{rampup} by calculating a sum of f(0) and $P_{O\_UE\_PUSCH}$ and a sum of ΔP_{PC} and ΔP_{rampup} and equating the two calculated sums	No construction necessary. Alternatively: wherein the second [accumulation] power control adjustment state f(i) for i=0 is set such that $P_{O\_UE\_PUSCH} + f(0) = \Delta P_{PC} + \Delta P_{rampup}$
3, 12	wherein g(0) is calculated from the values of $P_{O\_UE\_PUCCH}$, ΔP_{PC} , and ΔP_{rampup} by calculating a sum of g(0) and $P_{O\_UE\_PUCCH}$ and a sum of ΔP_{PC} and ΔP_{rampup} and equating the two calculated sums	No construction necessary. Alternatively: wherein the first power control adjustment state g(i) for i=0 is set such that $P_{O\_UE\_PUCCH} + g(0) = \Delta P_{PC} + \Delta P_{rampup}$

All of the asserted '966 patent claims require the power control variable f(i) at frame i=0 (*i.e.*, for Message 3) to be "initialized" according to the following equation:[2]

$$P_{O\_UE\_PUSCH} + f(0) = \Delta P_{PC} + \Delta P_{rampup}$$

[2] Claims 3 and 12 recite an analogous equation concerning how power control variable g(i) is initialized at frame i=0. This Section references the version of the equation specifying f(i), but the arguments apply equally to the equation for g(i) in claims 3 and 12. (Singer Decl. ¶¶ 45-50).

The underlying dispute is whether the claims require ***using*** the equation to determine f(0), or encompass methods, programs or apparatuses in which the equation ***happens to be satisfied***, even if f(0) has been determined in another way or is not even known. Plaintiff urges that "no construction is necessary," but its brief lays bare its theory that the claims only require setting f(i) to a starting value "that ***conforms to***" the claimed equation. (Br. at 16). Thus, Plaintiff's construction merely requires a retroactive determination of whether $P_{O\_UE\_PUSCH}$ + f(0) ***happens to*** equal $\Delta P_{PC} + \Delta P_{rampup}$, regardless of whether a method or product uses the claimed equation.

The ordinary meaning of "initialize" in this context requires using the equation to determine an initial value for f(0). *See* Declaration of Andrew Singer (Ex. 1) ¶¶ 23-24. The claims thus call for a ***calculation*** utilizing multiple terms, each of which can have different values each time that communication begins (*i.e.*, each time i=0). Defendants' construction is consistent with this express claim language, which Plaintiff added during prosecution after the Examiner rejected the original independent claims as overly broad and invalid based on the prior art. (Ex. 2, 5/18/2012 Office Action; Ex. 3, 8/21/2012 Office Action Response).

By contrast, Plaintiff downplays the equation and analyzes "initialize" in a vacuum while inserting the ambiguous phrase "is set such that," which, as Plaintiff maintains, only requires setting f(i) to a starting value "that conforms to" the equation. (Br. at 16). This would rewrite the '966 patent claims to cover the use of equations that are indisputably different from the particular equation that Plaintiff added during prosecution to secure the patent. (Singer Decl. ¶ 43). Plaintiff thus takes the position that the claim language ***does not require use of the claimed equation in a calculation***—effectively reading the equation out of the claims. Disregarding such an express limitation, however, would be "fundamental legal error." *Panduit*, 810 F.2d at 1576.

Defendants' construction, which respects the claim language and the prosecution history, simply clarifies for the jury that that the claimed equation must actually be used.[3]

[3] Plaintiff wrongly asserts (Br. at 17) that Defendants' construction "dictate[s] ***how*** [the claimed equations] are to be solved." Nothing in Defendants' construction specifies how the equations must be solved. Defendants merely seek to clarify that the equations must be used somehow.

a. The Express Claim Language Requires that the Claimed Invention Must Use the Claimed Equation to Perform a Calculation

i. The Independent Claims Require a "Processor" to "Initialize" a Function Using the Claimed Equation

The express claim language requires a processor to (a) actually ***make use of*** the claimed equation to calculate f(0) (in method claims 1-8) or (b) be ***programmed to make use of*** the equation to calculate f(0) (in apparatus or "computer readable memory" claims 9-17). Claim 10, for example, requires:

> "a processor … configured … to cause the apparatus to: initialize for i=0 … a second accumulation power control adjustment state f(i) … ***wherein*** … ***f(i)***… ***is initialized as:***[4]
>
> $$P_{O\_UE\_PUSCH} + f(0) = \Delta P_{PC} + \Delta P_{rampup}$$[5]

Processors operate by executing a set of operations. To ***initialize*** a value according to a provided equation, the processor must perform operations that make use of the equation. (Singer Decl. ¶¶ 26-27). A processor initializing f(i) cannot merely "set" a starting position for f(i) that "conforms" to the recited equation per Plaintiff's understanding. (Br. at 16). Instead, in the context of the disputed claim language, the processor must perform operations making use of the equation to calculate f(0) by performing the specified mathematical operations using values corresponding to the claimed variables. (Singer Decl. ¶¶ 26-27).[6] The specific calculation for initializing f(i) = 0 is specified as: $\mathbf{P_{O\_UE\_PUSCH} + f(0) = \Delta P_{PC} + \Delta P_{rampup}}$. As Professor Singer explains, a POSA would understand initializing f(0) using this equation to require a calculation in which the terms on the left-hand side of the equal sign are summed and equated to the sum of the terms on the right-hand side of the equal sign. *Id.* ¶ 27.[7]

---

[4] Unless otherwise noted, emphasis is added.

[5] Claim 9 includes analogous language in the context of a "computer readable memory" claim.

[6] Claim 1 includes similar language evidencing the need to perform a calculation: "using a processor to initialize for i=0 a second power control adjustment state f(i)…" Again, for a processor to initialize these adjustment states according to the claimed equation, it must execute operations. Those instructions will make use of the claimed equation. (Singer Decl. ¶ 28).

[7] Prof. Singer's expert testimony is unrebutted—Plaintiff's P.R. 4-3 statement did not reference any expert testimony on this subject, nor did Plaintiff submit an expert declaration with its brief.

ii. Dependent Claims 4 and 13 Reinforce the Computation Requirement of Claims 1 and 10

Claims 4 and 13, which depend from claims 1 and 10, reinforce that the equation of claims 1 and 10 defines a ***calculation*** to determine f(0) and not merely a test to apply retrospectively. *Phillips*, 415 F.3d at 1314-15 ("Other claims of the patent in question, both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term.").

For example, claim 13 narrows claim 10 by requiring that "$P_{O\_UE\_PUSCH=}$ $P_{O\_UE\_PUCCH}$ =0 ***when the processor computes*** initial values at i=0 for the respective shared and control channels." Claim 4 includes analogous language limiting independent method claim 1 by specifying that $P_{O\_UE\_PUSCH}$=$P_{O\_UE\_PUCCH}$ =0 "***when computing*** initial values at i=0." Importantly, claims 4 and 13 do not recite "further comprising" to introduce the terms "computes" and "computing." Rather, claims 4 and 13 recite "***when*** computing" and "***when*** the processor computes." These phrases confirm that the corresponding independent claims already require "computing" (synonymous with "calculating" in this context) a value of f(0), although the independent claims are not limited to situations in which $P_{O\_UE\_PUSCH}$=$P_{O\_UE\_PUCCH}$ =0.[8] (Singer Decl. ¶¶ 29-31).

Strikingly, Plaintiff ignores claims 4 and 13 even while citing ***other*** dependent claims for the proposition that when the "calculation is called for, the inventors specified it." (Br. at 16). Claims 4 and 13 confirm the correctness of Defendants' construction and specify one particular scenario for calculating power control adjustment state f(0). By contrast, the other dependent claims cited by Plaintiff are immaterial given that they concern equations for calculating an entirely different value (initial transmit power). Indeed, as discussed in Section IV.A, the claims cited by Plaintiff are invalid as indefinite because they cite no link to f(0) at all.

[8] 35 U.S.C. § 112 ¶ 4 requires a dependent claim to incorporate all limitations of its independent claim and "then specify a further limitation."

b. The Specification Defines the Claimed Equation Based on Calculations that Require Multiple Terms

In addition to "stay[ing] true to the claim language," construing the '966 patent claims to require ***using*** the equation to determine initial values for f(0) and g(0) also "most naturally aligns with the patent's description of the invention." *Phillips*, 415 F.3d at 1316. When introducing the claimed equations, the specification further explains the performance of a summation of the terms appearing on the left side:

$$P_{O\_UE\_PUSCH} + f(0) = \Delta P_{PC} + \Delta P_{rampup} \qquad [4a]$$

$$P_{O\_UE\_PUSCH} + g(0) = \Delta P_{PC} + \Delta P_{rampup} \qquad [4b]$$

> These equations say that the ***sum*** of the UE specific power control constants ($P_{O\_UE\_PUSCH}$ or $P_{O\_UE\_PUCCH}$) and the power control initial states (f(0) or g(0)) ***is equal to*** the open loop power control error, ***taking into account*** the preamble power ramp-up.

('966 patent at 7:1-5).

In other words, the specification uses clear language of mathematical calculation when describing the exact equation appearing in claims 1, 9, and 10—just as a POSA would understand such an equation. (Singer Decl. ¶ 24). The inventors' own description of the claimed equation confirms that the equation does not merely define a condition to be assessed retrospectively. Instead, the equation requires a mathematical calculation inclusive of all of the terms shown in that equation, based on the specific values of those terms at the time the calculation is performed.

c. Plaintiff's Flawed Construction

i. Plaintiff's Construction Would Divorce the Word "Initialize" from the Context of the Claims

Plaintiff asks the Court to interpret "initialize" in a vacuum when arguing that its ordinary meaning is "set a starting position" rather than "calculate." (Br. at 16). Focusing on one word in isolation invites legal error. *Lexion Med. v. Northgate Techs.*, 641 F.3d 1352, 1356 (Fed. Cir. 2011) ("The customary meaning of a claim term is not determined in a vacuum and should be harmonized, to the extent possible, with the intrinsic record, as understood within the … field of the invention."); *On Demand Machine v. Ingram Indus.*, 442 F.3d 1331, 1344 (Fed. Cir. 2006)

(reversing overly broad construction: "Care must be taken lest word-by-word definition, removed from the context of the invention, leads to an overall result that departs significantly from the patented invention."); *Phillips*, 415 F.3d at 1314 ("The context in which a term is used in the asserted claim can be highly instructive.").

By focusing solely on "initialized," Plaintiff ignores three critical sources of context discussed above: (1) the "processor" claim language, which existed in the independent claims as originally filed and which Plaintiff further restricted when making the amendments during prosecution, (2) related dependent claims, and (3) the overall claim language that Plaintiff added to the independent claims to secure allowance. All three sources confirm that the independent claims as issued require making use of the equation to perform (or program, for the apparatus claims) a calculation to determine f(0)—not merely determining retrospectively whether a value for f(0), that was determined in some other way, happens to satisfy the equation as claimed. As discussed below, the amendments during prosecution are particularly significant.

ii. Plaintiff's Construction Would Impermissibly Erase the Equation from the Claims and Read the Claims on Prior Art Distinguished During Prosecution

Under Plaintiff's construction, the claimed equation would cover products or methods based on the coincidental occurrence of a ***condition***—even if the products or methods never make use of the equation. Taking Plaintiff's approach, the claimed equation only comes into play after the fact, *i.e.*, when a factfinder applies the equation to determine whether the value f(0) "conforms to" the equation. (Br. at 16). As discussed above, such a construction broadens the scope of the asserted claims beyond what was contemplated in the specification and certainly beyond what was negotiated during prosecution.

In particular, Plaintiff's construction would cover the operation of a cellular system whenever $P_{O\_UE\_PUSCH}$, f(0), ΔP_{PC}, and ΔP_{rampup} ***happen to*** assume values such that a sum of the first two is equal to a sum of the second two, without using the claimed equation. (Singer Decl. ¶¶ 32-43). In other words, the value of f(0) can "conform" (in Plaintiff's language) to the value dictated by the claimed equation even though the initialization process never uses that equation.

For example, consider a scenario in which a terminal initializes f(0) by always setting f(0) = 5. In this hypothetical, the terms $P_{O\_UE\_PUSCH}$, ΔP_{PC}, and ΔP_{rampup} are not used when determining f(0). Nevertheless, situations could exist in which the sum of ΔP_{PC} and ΔP_{rampup} less $P_{O\_UE\_PUSCH}$ equals 5. (Singer Decl. ¶¶ 43-44). Under Plaintiff's construction, this hypothetical system, which entirely ignores not only the equation but all three of those values, would still be covered by the '966 patent claims. Yet scenarios such as the example above are disclosed in the prior art. (Singer Decl. ¶¶ 37, 43).

The prosecution history highlights that the claimed equation was critical to issuance. The Examiner rejected the original independent claims, while providing that the dependent claims, including the disputed equation, would be allowable if rewritten in independent form. (Ex. 2, 5/18/2012 Office Action at 8). In response, the applicants amended the independent claims to expressly include the disputed equation for initializing f(0), prompting the Examiner to issue a notice of allowance. (Ex. 3, 8/21/2012 OA Resp. at 2, 10; Ex. 4, 9/14/2012 Notice of Allowance). The fact that the inventors rewrote the independent claims during prosecution to include the equation and thereby to overcome prior art makes Plaintiff's failure to account for the added limitations a "particularly severe" problem with Plaintiff's construction. *Mangosoft,* 525 F.3d at 1331.

Plaintiff's construction would have the "nonsensical result" of covering the very prior art that the inventors overcame when they limited the independent claims to recite the equation in the first place. *BENQ*, 533 F.3d at 1370. For example, certain prior art systems simply set f(0) = 0. In these systems, the sum of ΔP_{PC} and ΔP_{rampup} less $P_{O\_UE\_PUSCH}$ could also happen to equal 0, such that the equation from claim 1 of the '966 patent – if used – would provide f(0) = 0, even though f(0) is set independently of the other three variables. Under Plaintiff's construction, then, even using a ***prior art approach*** to initialize f(0) without using the claimed equation at all would fall within the scope of the '966 patent claims. (Singer Decl. ¶ 43). Defendants' construction avoids this nonsensical result and prevents Plaintiff from erasing the claim limitation that the inventors added during prosecution to obtain allowance of the '966 patent.

2. "preamble power"

Claims	Defendants' Proposal	Plaintiff's Proposal
1, 2, 5, 9-11, 14	a transmit power of a preamble sent on an access channel	No construction necessary.

All of the asserted '966 patent claims refer to "preamble power" in the context of "wherein the initial transmit power depends on a ***preamble power*** of a first message ***sent*** on an access channel." Defendants request that the Court construe "preamble power" in accordance with the intrinsic evidence as "transmit power of a preamble sent on an access channel."

Taking the phrase as a whole, a power ***sent*** on a channel is a ***transmit*** power. Thus, "preamble power" is the "transmit power of a preamble of a first message sent on an access channel." The intrinsic evidence is clear: a preamble is always associated with a first message sent on the access channel, and as a consequence, "a first message" is redundant and can be dropped. *See* '966 patent Figs. 1B and 1C (depicted below).[9]

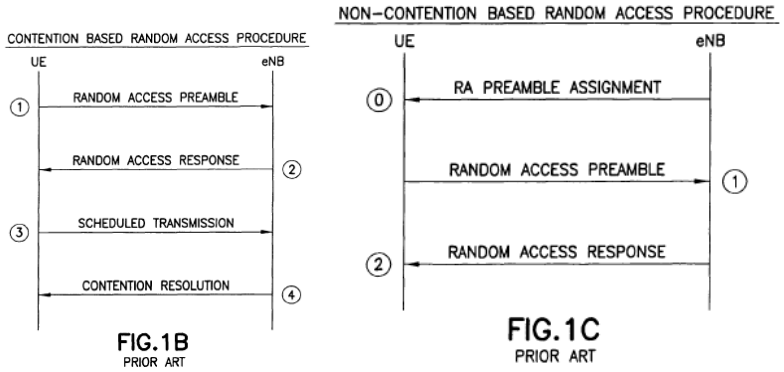


FIG.1B
PRIOR ART

FIG.1C
PRIOR ART

This construction is well-supported by the patent specification, which repeatedly references "***preamble power*** of a first message ***sent*** on an access channel." (*See* '966 patent Abstract; Fig 3 Box 306; Fig. 4 Box 404; 3:22-24; 3:37-38; 3:51-53; 11:27-29). Applicants' arguments during prosecution of the '966 patent also confirm that the preamble power is the transmit power:

[9] Extrinsic evidence—including the 3GPP standard that Plaintiff has repeatedly cited—confirms the same. *See, e.g.*, Ex. 5, 3GPP TS 36.300 v8.4.0, §§ 10.1.5.1 & 10.1.5.2, Figs. 10.1.5.1-1 & 10.1.5.2-1 (showing that Random Access Preamble is the first message sent on an access channel.)

"Nowhere is it seen that Kim makes initial or any other transmit power on its PMBSCH (Figure 11) dependent on the transmit power, preamble or otherwise, that Kim's UE uses to transmit its MBMS service request on the RACH (Figure 5)." (Ex. 6, 3/5/2012, Applicant's Arguments in Amendment at 11).

Plaintiff complains (Br. at 14) that the word "transmit" improperly "confine[d] preamble power to something less than its full scope," yet never articulates what else "preamble power" could mean or in what way it is unjustifiably limited by Defendants' construction.

3. "wherein the initial transmit power depends on a preamble power of a first message sent on an access channel and the second power control adjustment state f(0)"

Claims	Defendants' Proposal	Plaintiff's Proposal
1, 9, 10	wherein the initial transmit power takes into account both the preamble power and the second power control adjustment state f(0)	No construction necessary.

Claim construction is also necessary to clarify the longer "preamble power" phrase for the jury in the context of the relevant mathematical formulas and to resolve an "actual dispute" between the parties as to the scope of the claims—a dispute that the Court rather than the jury must resolve. *O2 Micro*, 521 F.3d at 1360. The parties' dispute centers on the two terms highlighted in bold and italics: "wherein the initial transmit power ***depends on*** a preamble power of a first message sent on an access channel ***and*** the second power control adjustment state f(0)." As Defendants contend, "depends on … and …" has a specific meaning to a POSA, in view of the plain claim language and the claimed formulas as explained in the specification. It means: "takes into account both." Consequently, the disputed phrase means "wherein the initial transmit power ***takes into account both*** the preamble power and the second power control adjustment state f(0)."

Claim terms should be construed "in view of the specification, of which they are a part." *Phillips*, 415 F.3d at 1315. When the specification discloses that a value A "depends on" another value B, the specification consistently includes B in the equation for A:

> The PUSCH PC formula for the UE in the Ah subframe is defined at section 5.1.1.1 of 3GPP TS 36.213 v8.2.0 as follows:
>
> $$P_{PUSCH}(i) = \min\{P_{MAX},\ 10\log_{10}(M_{PUSCH}(i)) + P_{O\_PUSCH}(j) + \alpha \cdot PL + \Delta_{TF}(TF(i)) + \boldsymbol{f(i)}\}\ \text{(dBm)} \qquad [1]$$
>
> where,
> …
> **f(i)** = **f(i−1)** + δ_{PUSCH}(i−K_{PUSCH}) if f(*) represents accumulation
> …
> As can be seen above at equation [1], ***the formula for P_{PUSCH}(i) depends on*** the current PUSCH power control adjustment state which is termed ***f(i)***. For accumulation, this ***adjustment state depends on previous adjustments*** made in previous subframes, even for the case where f(i) is set to an absolute value since it is set for the subframe (i−K_{PUSCH}).

('966 patent at 4:28-34; 5:1-2, 6:27-32).

In observing that $P_{PUSCH}(i)$ refers to $f(i)$ in Equation [1], the inventors stated that $P_{PUSCH}(i)$ "depends on" $f(i)$. In other words, $P_{PUSCH}(i)$ "takes into account" $f(i)$. No mathematical substitution is used to break $f(i)$ into subparts or combine the subparts with other values for recasting the relationship. The entirety of $f(i)$ is taken into account. (*See id.* at 4:28-35; 6:27-29; 6:29-32; 5:36-42; 6:42-44; 6:44-46).

Further, the disputed phrase traces back to the specification that teaches "wherein the initial transmit power ***depends on*** a preamble power of a first message sent on an access channel, ***and is initialized with*** the second power control adjustment state f(0)." (*See id.* at Abstract, Fig. 4, Box 404; 3:22-25; 3:37-41; 3: 51-54; 11: 27-31). The term "and" signifies that both conditions exist. There is no support in the '966 patent for the proposition that the initial transmit power for the uplink shared channel ***either*** depends on a preamble power of a first message sent on an access channel ***or*** is initialized with the second power control adjustment state f(0). The inventors were clear that ***both*** are required, not one or the other. Accordingly, the disputed phrase means that the initial transmit power ***takes into account both*** the preamble power and the second power control adjustment state f(0), together and without substitutions that break them into subparts for partial combination.

Plaintiff contends that the claim language requires no construction because it "employs straightforward terminology according to its plain meaning, [and] is consistent with the specification." (Br. at 13). On the contrary, the claim language varies from the specification. Moreover, even if the terminology ***was*** clear to a POSA, it would not be meaningful for jurors. Saying "no construction necessary" would leave the jury to speculate on potentially overbroad constructions and force the jury to resolve the parties' dispute over claim scope.

Moreover, the three examples that Plaintiff cites support Defendants' position. (Br. at 14-15). The first example, '966 patent at 4:35-36, states that "P_{MAX} is the maximum allowed power that ***depends on*** the UE power class." By its own terminology, this example supports the construction that P_{MAX} "takes into account" the UE power class, without any uncalled for mathematical substitution into the UE power class. The second example, *id.* at 6:27-46 ("the formula for P_{PUSCH}(i) ***depends on*** the current PUSCH power control adjustment state"), supports Defendants' construction when considered with the immediately preceding phrase that Plaintiff fails to cite: "***[a]s can be seen above at equation [1]***, the formula for P_{PUSCH}(i) ***depends on*** the current PUSCH power control adjustment state." (*Compare* Br. at 14 *with* '966 patent at 6:27-29). Hence, the specification discloses that the formula for P_{PUSCH}(i) ***depends on*** the current PUSCH power control adjustment state f(i), as the formula for P_{PUSCH}(i) in equation [1] refers to f(i); that is, P_{PUSCH}(i) "takes into account" f(0). In the third and final example, '966 patent at 11:25-31 ("wherein the initial transmit power ***depends on*** a preamble power of a first message sent on an access channel"), the specification again supports Defendants' "depends on" construction, as $P_{preamble}$, is referenced in the formulas for P_{PUSCH} in equation [5] and for P_{Msg3} in claim 5; that is, P_{PUSCH}(i) or P_{Msg3} "takes into account" the entire $P_{preamble}$.

For these reasons, the phrase "wherein the initial transmit power ***depends on*** a preamble power of a first message sent on an access channel ***and*** the second power control adjustment state f(0)" should be construed as "the initial transmit power ***takes into account both*** the preamble power and the second power control adjustment state f(0)."

4. "ΔP_{PC}"

Claims	Defendants' Proposal	Plaintiff's Proposal
1, 9, 10	the difference between a target preamble power and a power actually observed at a base station	No construction necessary.

The term ΔP_{PC} has neither a "widely accepted meaning" nor a "particular meaning in a field of art." *Phillips*, 415 F.3d at 1314. Defendants' construction is taken directly from the inventors' own lexicography. After introducing this variable for the first time, the '966 patent specification defines the term: "ΔP_{PC} is here assumed to be the difference between the target preamble power and the power that eNB actually observes." ('966 patent at 7:5-7). Thereafter, the variable is used several times, *see, e.g., id.* at 8:36-42, 8:59-62, 9:62-10:11, 10:20-24, 10:44-57, 11:10-15, but at no point did the inventors attempt to change its definition. Instead, each usage relates back to the definition above. Because this term does not have an ordinary meaning outside the context of the patent and was defined by the inventors in the patent, "the inventor's lexicography governs." *Phillips*, 415 F.3d at 1316.

Plaintiff attempts to identify a discrepancy in the following paragraph of the '966 patent specification, which is taken from the ***same*** paragraph as the definition above:

> ***[t]he actual value of ΔP_{PC} may be signaled directly*** by the eNB as the power control command, ***or*** to save on signaling overhead ***the eNB may explicitly signal a bit signal*** (one, two or more bits) as the power control command ***which the receiving UE uses as an index to look up the true value ΔP_{PC}*** that is associated in a locally stored table with that index.

(Br. at 12) (*citing* '966 patent at 7:7-13) (different emphasis shown). Contrary to Plaintiff's interpretation, however, this paragraph does ***not*** state that ΔP_{PC} can be a bit signal. Rather, it states that the "power control command" can signal either the value of ΔP_{PC} or a bit signal that the terminal can use to derive the value of ΔP_{PC}. Thus, a terminal may receive the value of ΔP_{PC} in two ways: (1) direct signaling of the value of ΔP_{PC}; or (2) indirect signaling of bits indexed to the value of ΔP_{PC}. Either way, ΔP_{PC} is still a value requiring a definition. The passage above merely explains how the value of ΔP_{PC} can be ***signaled***.

Plaintiff also contends that the claims provide their own definition of ΔP_{PC} when they state, "ΔP_{PC} is a power control command indicated in a second message that is received in response to sending the first message." (Br. at 12). However, a POSA would recognize that this recitation in the claims, like the specification passage discussed above, merely describes the vehicle to deliver the ΔP_{PC} value to the terminal—*i.e.*, via a power control command. If Plaintiff's interpretation were adopted, it would lead to the nonsensical result requiring the claimed formula to include a power control ***command*** instead of ΔP_{PC}'s numerical value.

Thus, a POSA would read the claim term ΔP_{PC} in light of the '966 patent specification, which clearly defines the value as "the difference between a target preamble power and a power actually observed at a base station" as discussed above.

B. The '060 Patent

The '060 patent describes using two well-known downlink communications channels—paging channels and broadcast channels—to deliver emergency alerts to all of the terminals in a given cell. (*See, e.g.*, '060 patent at Fig. 1, 1:17-19, 1:64-2:3).

A broadcast channel allows a single message to be transmitted to all terminals in a cell. Terminals do not always monitor the broadcast channel, however. Instead, a "paging channel" is used to get the attention of a specific terminal or terminals. (Def. Tutorial at 14).

For example, the paging channel allows a base station to signal a particular terminal to connect for an incoming phone call. A unique identifier known as a Temporary Mobile Subscriber Identity (TMSI) is allocated to each terminal by the base station when that terminal enters the base station's cell. When the base station wants to signal the terminal to connect a phone call, the base station sends a paging message which includes the TMSI of the specific terminal it is targeting. Many terminals receive the paging message, and each checks to see whether the TMSI sent via the paging message matches its own TMSI. If these two identifiers match, the terminal knows that the call is intended for it, and thus the terminal establishes a communication channel with the base station to receive the call. (Def. Tutorial at 15; '060 patent at Fig. 5; 3:23-24; 3:33-41).

The ’060 patent describes using this paging channel to disseminate cellular emergency warnings. It describes using an “Emergency TMSI” (E-TMSI). A paging message with an E-TSMI tells ***many*** terminals in a cell to begin monitoring the broadcast channel, which can be used to distribute emergency information. The terminals receive this E-Paging Message, and compare, or check, the received E-TMSI against the TMSI and E-TMSIs stored in their memories. If the E-TMSI from the E-Paging Message matches an E-TMSI stored at the terminal, the terminal begins monitoring the broadcast channel to receive the emergency alert content. (Def. Tutorial at 16; ’060 patent at 5:51-62).

Prior to the ’060 patent’s priority date, others had already described such emergency alert systems. Thus, the inventors amended their claims during prosecution to require that each terminal store “at least ***two*** specific identifiers ... for ***different types of emergencies***.”[10] (Ex. 11, 6/26/2014 Amendment and Remarks). For example, if the emergency is of “limited severity,” the terminals may monitor the broadcast channel only “for a defined time (*e.g.*, 1 hour).” For other emergencies, by contrast, the terminal “receive[s] all broadcast messages until manual switch-off.” (’060 patent at 5:31-41).

1. “storing, at the terminal of the cellular wireless communications system, a group of specific identifiers” (claim 1) / “store a group of specific identifiers” (claims 7, 15)

Claims	Defendants’ Proposal	Plaintiff’s Proposal
1, 7, 15	store [/storing], at the terminal, a plurality of specific identifiers prior to receipt of the paging message	No construction necessary.

As the proposed constructions and Plaintiff’s Opening Brief (at 4-5) make clear, the parties dispute whether the “storing ...” claim term requires storing the “group of specific identifiers” ***prior to*** the terminal’s checking of whether a received paging message includes “at least one specific identifier of the group.”

[10] Defendants originally proposed construing this phrase, but now stipulate that no construction is needed so that the Court can focus on the claim terms that plainly do require construction.

The plain language of the claims—including the use of antecedent basis—dictates a sequential construction. The claim first specifies "storing ... ***a group***[11] of specific identifiers." Then the claim requires "checking ... whether a paging message received ... includes at least one specific identifier of ***the group*** of specific identifiers." The only way "the group" in the "checking" limitation can be understood within the context of this claim is by reference to the ***preceding*** identification of "a group" in the "storing" limitation. *See, e.g.*, *Intellectual Ventures II, LLC v. AT&T Corp.*, 2015 WL 4138590, *14 (W.D. Tex. July 8, 2015) ("In view of the antecedent basis … a plain reading of the claims is that the order of performance is limited."); *Advanced Tech. Incubator v. Sharp Corp.*, 2010 WL 1170233, *2-3 (E.D. Tex. Feb. 24, 2010) ("Because 'said layer' refers for antecedent basis to 'a layer' that has been disposed on 'said first substrate,' the 'forming' must occur 'through' that layer after it has been disposed.").

The logic of claim 1 also "requires that the steps be performed in the order written." *Mformation Techs. v. Research in Motion*, 764 F.3d 1392, 1398-99 (Fed. Cir. 2014). It recites:

> A method … comprising:
>
> ***storing***, at the terminal of the cellular wireless communication system, a ***group of specific identifiers*** common to a plurality of terminals ….;
>
> ***checking***, by the terminal, ***whether a paging message*** received from the base station ***includes at least one specific identifier of the group of the specific identifiers***;

('060 patent at claim 1). If the identifiers are not already stored in the terminal, the terminal cannot perform the checking step and thus cannot achieve the '060 patent's goal of "efficiently disseminating emergency warning messages." (Br. at 3). Both the specification and Plaintiff's own technology tutorial confirm the order of steps. The specification describes the "checking" step as comparing the contents of the paging message to a "specific identifier ... ***stored in memory unit 44*** of Fig. 4." ('060 patent at 3:35-41). Plaintiff's tutorial depicts the specific identifiers stored at the terminals ***prior to receipt of the paging message***. (Pl. Tutorial at 16).

[11] Defendants propose clarifying that "a group" of specific identifiers is a "plurality" (*i.e.*, two or more) to emphasize that a single identifier cannot constitute a "group" of identifiers.

Plaintiff argues that the terminal could execute the "checking" step without first storing the specific identifiers, if it stored the identifiers ***while*** checking for a match. (Br. at 4-5).

Collapsing the "storing" and "checking," however, would render the separate "storing" step redundant and the relevant claim language superfluous. *Mformation*, 764 F.3d at 1399 ("[T]he separate sub-step for establishing a connection would become 'superfluous' if we concluded that a connection did not have to be established (completed) before transmission. That is because, under such construction of the claim, establishing a connection is necessarily encompassed in transmitting a command."); *Zapmedia Servs., Inc. v. Apple Inc.*, 2010 WL 2036406, *15 (E.D. Tex. May 19, 2010) ("In the present case, step (a) is 'providing a user with a user account' and step (c) is 'authorizing ... a plurality of media player assets with the user account.' Step (a) provides the user accounts, and a prerequisite for step (c) is the existence of a user account ... Step (c) could only occur before step (a) if the 'with the user account' language were read out of the claim."). Interpreting the "storing" step as superfluous would be a "particularly severe" problem, as the inventors added the requirement of "storing ... a group of specific identifiers" during prosecution to distinguish prior art. *Mangosoft*, 525 F.3d at 1331.

The same grammar, logic, and law dictate construing claims 7 and 15 to incorporate the same sequence as claim 1. *Function Media, LLC v. Google, Inc*., 708 F.3d 1310, 1314, 1320 (Fed. Cir. 2013) (concluding that a system claim that recites "processing" an "electronic advertisement" necessarily indicates that "the creation of the ad must happen before the processing begins"). Claims 7 and 15 require that the "control unit" or "processor" be configured to execute methods analogous to that claimed in claim 1. Further, the construction of "store a group of specific identifiers" in those claims should track the construction of "storing ... a group of specific identifiers" in claim 1. *Phillips*, 415 F.3d at 1314.

For these reasons, the Court should construe the "storing" and "store a group of specific identifiers" limitations to require storage before receipt of the paging message, thus preventing Plaintiff from improperly reading these limitations out of the claims.

2. "establishing at least one of a physical and logical channel"

Claims	Defendants' Proposal	Plaintiff's Proposal
1, 7, 15	establishing at least one communication channel between the terminal and the base station	No construction necessary. Alternatively: establishing a physical channel, a logical channel, or both.

Translating the term "at least one of a physical and logical channel" to "at least one communication channel" will assist the jury by making a technical term more approachable without changing the scope of the claims. *DeMarini Sports, Inc. v. Worth, Inc.*, 239 F.3d 1314, 1322 (Fed. Cir. 2001) (Construing claims is "simply a way of elaborating the normally terse claim language in order to understand and explain, but not to change, the scope of the claims.").

Although Plaintiff now objects to identifying the physical and logical channels as communications channels on the ground that it would be "unhelpful, unnecessary, and unwarranted" for the jury (Br. at 9), Plaintiff itself already used that language to assist the Court. When describing the '060 patent, Plaintiff explained the concept of establishing channels by stating that "the device establishes a physical or logical channel for ***ordinary communications***." (Br. at 4). Similarly, Plaintiff's technology tutorial explains that the system "opens up a line of communication" after a paging message and establishes a "***bidirectional communication channel***" labeled as a "***Physical/Logical Channel***." (Pl. Tutorial at 14).

The intrinsic record and Plaintiff's own descriptions also confirm the value of clarifying that the communications channel runs "between the terminal and the base station" Claim 1 states that the terminal establishes the "at least one physical and logical channel. It also provides helpful context in specifying that the claim is directed to a "method of communicating with a terminal in a ***cellular wireless communication system***." Further, the specification also makes clear that the claimed invention relates to "[t]he field of communication in particular mobile communication." ('060 patent at 1:18-20; *see also* at 2:29-44, Figs. 1, 3). Likewise, Plaintiff states that the "patents [including the '060 patent] . . . generally relate to mobile communications." (Br. at 1).

Defendants' construction is consistent with the intrinsic record and tracks how Plaintiff itself described the claimed invention for the Court. By contrast, "no construction" would leave the jury to grapple on its own with the meaning of this technical phrase.

3. "paging message"

Claims	Defendants' Proposal	Plaintiff's Proposal
1, 7, 15	a message sent by a base station on a shared channel and carrying information corresponding to unique identifiers	No construction necessary.

Plaintiff concedes that the '060 patent uses "paging message" consistent with its ordinary meaning to a POSA, but wrongly cites this as a reason why no construction is needed. (Br. at 7). Plaintiff's argument defies the purpose of claim construction, *i.e.*, "to understand and explain" terse claim language. *See DeMarini*, 239 F.3d at 1322. Plaintiff's argument is also inconsistent with Plaintiff's own emphasis that another term— "bitmap" —requires construction even though it has a "well-understood ordinary meaning to a" POSA. (Br. at 18). As Plaintiff acknowledges in ***that*** context, a POSA's understanding is not commensurate with the jury's understanding.

Plaintiff has no response to the first part of Defendants' construction—"a message sent by a base station on a shared channel." This is indisputably one of the requirements for a paging message, as a POSA would appreciate but many jurors on their own would not.

Plaintiff's only response to the second part of Defendants' construction (*i.e.*, the "unique" identifier requirement) ignores the intrinsic record confirming this construction. The '060 patent repeatedly refers to a paging message as a message sent from the base station that carries information that corresponds to unique identifiers stored at the terminal, whether uniquely identifying the terminal itself or uniquely identifying types of emergencies in order to notify the terminal to switch to the broadcast channel to receive emergency content. (*See, e.g.*, '060 patent at 2:45-48 ("[I]n step S13, the RAN or BSS [base station system]/MSC 2 ***sends one or more paging messages which include a specific identifier*** such as an E-TMSI which is accepted by all terminals 1 receiving the paging message."); *id.* at 3:60-62 ("The ***paging message may include a specific identifier*** such as a specific temporary mobile subscriber identity, TMSI.")).

The ’060 patent also teaches that the TMSI in the paging message can be the typical unique TMSI allocated to the terminal by the network or, alternatively, can be another unique “specific identifier” for indicating an emergency. (‘060 patent at 2:45-48; 2:64-66; 3:35-41).

4. “temporary mobile subscriber identity”

Claims	Defendants’ Proposal	Plaintiff’s Proposal
1, 7, 15	a temporary identifier allocated to the terminal to uniquely identify the mobile subscriber	No construction necessary.

a. Defendants’ Construction Is Supported by the Claim Language and Specification

The parties agree that the claimed “temporary mobile subscriber identity” must be a mobile subscriber’s temporary identity. (Br. at 9). The concept of “identity” permits an object (*e.g.*, one mobile subscriber) to be recognizable to the exclusion of others. But Plaintiff argues for “no construction” despite clear intrinsic evidence defining a TMSI as a unique identity.

The ’060 patent specification bolsters Defendants’ construction by distinguishing “specific identifiers” (also recited in claims 1, 7, and 15) from “temporary mobile subscriber identities” on the basis that the TMSI is “exclusively allocated” to “one terminal only.” (’060 patent at 4:59-62). Thus, a POSA would understand that a TMSI for a terminal must be unique and different from the other TMSIs because it is exclusively allocated to the terminal.

While Plaintiff says “there is no applicable lexicography” (Br. at 9), the ’060 patent incorporates (at 4:25-27) “3GPP TS 23.003 V7.1.0 (2006 September), chapter 2 [to] ***define[]*** actually valid subscriber identities such as IMSI, ***TMSI*** or P-TMSI.” That standard provides:

> A ***unique*** International Mobile Subscriber Identity (IMSI) shall be allocated to each mobile subscriber in the GSM/UMTS system…. In order to support the subscriber identity confidentiality service the VLRs and SGSNs may allocate Temporary Mobile Subscriber Identities (TMSI) to visiting mobile subscribers. The VLR and SGSNs must be capable of ***correlating an allocated TMSI with the IMSI*** of the MS to which it is allocated….
>
> In order to ***avoid double allocation of TMSIs*** after a restart of an allocating node, some part of the TMSI may be related to the time when it was allocated or contain a bit field which is changed when the allocating node has recovered from the restart.

Ex. 7, 3GPP TS 23.003 §§ 2.1, 2.4 (v.7.1.0, Sept. 2006).

In other words, the 3GPP standard incorporated into the patent requires each mobile subscriber to have a unique identifier that is then used to allocate the TMSI. A POSA would understand that for the TMSI to correlate to the unique IMSI, the TMSI must also be unique.

b. Plaintiff's Arguments Are Not Supported by the Claim Language or the Specification

Plaintiff argues that Defendants' construction injects "a new, unclaimed relationship between an identifier, a terminal, and a mobile subscriber" because it "require[es] an identifier allocated to the *terminal*." (Br. at 9-10) (emphasis original). However, the express claim language requires the TMSI to be "allocated to the terminal." *See* Claims 1, 7, 15 ("[T]he received paging message includes a temporary mobile subscriber identity ***allocated to the terminal***."). Moreover, Plaintiff's argument is inconsistent with its technology tutorial, which explained that "the paging message includes a ***'subscriber identity' which has been allocated to that specific mobile device***. If the mobile device determines that the subscriber identity in the paging message corresponds to ***subscriber identity allocated to that mobile device***," it communicates with the network. (*See* Pl. Tutorial at 14). In short, Plaintiff's argument that the claimed TMSI need not be allocated to the terminal is inconsistent with the claimed invention.

C. The '556 Patent

The '556 patent takes the concept of bitmaps—a well-known tool for organizing and compressing a collection of "bits" (1's and 0's)—and applies it for communicating power transmission and availability information (otherwise known as power headroom reports, as discussed in slides 30-39 of Defendant's technology tutorial) in the context of uplink carrier aggregation. As discussed in slides 31-36 of Defendant's tutorial, carrier aggregation allows each terminal to have a plurality of carriers, or connections, with the base station. For example, the '556 patent discloses five uplink carriers. When the terminal first connects to the base station, one of its cells[12] initiates a connection with the base station. This cell is called the primary cell.[13]

[12] The terms "carrier" and "cell" are used synonymously in the '556 patent.

[13] The "primary cell" need not always be the same cell.

The other configured cells are called secondary carriers or secondary cells. Carrier aggregation is used in downlink communications and can also be configured in the uplink, although aggregation of two or more secondary carriers in the uplink has not been deployed to date.

1. "bitmap" (claims 13, 14, 21, 22) / "a bitmap indicating which power headroom reports are being reported" (claims 13, 21)

Claims	Defendants' Proposal	Plaintiff's Proposal
13, 14, 21, 22	"a collection of bits" / "a collection of bits indicating which power headroom reports are being reported"	"a data structure that represents information in the form of a collection of individual bits" / no construction necessary, *see* "bitmap"

Defendants' construction of "bitmap" is consistent with how a POSA would understand this phrase and how the '556 patent uses it. Plaintiff acknowledges the need to translate this technical meaning for the jury. (Br. at 18). However, Plaintiff's proposed construction of bitmap includes extraneous language that would unnecessarily complicate the analysis. *Funai*, 616 F.3d at 1366 ("The criterion is whether the explanation aids the court and the jury in understanding the term as it is used in the claimed invention.").

As both parties agree, the term "bitmap" means a "collection of bits." However, Plaintiff adds the extraneous phrase, "a data structure that represents information." This added language does not clarify the "bitmap" limitation. Instead, it injects confusion. For example, the phrase "data structure" is itself ambiguous; it carries no plain meaning and is nowhere even mentioned in the intrinsic record of the '556 patent. It is further unclear what "information" is being represented in such a data structure.

Plaintiff maintains (Br. at 19) that the extra language is needed to clarify that bitmaps cannot constitute "garbage data" and instead must take on some form or structure. But the surrounding claim language itself already emphasizes why the claimed bitmap cannot not be "garbage data." The claims themselves describe what form and information the claimed bitmaps represent: "a bitmap ***indicating which power headroom reports are being reported***." ('556 patent at claims 13, 14, 21, 22). Plaintiff's construction merely duplicates and confuses this context.

Whether construed alone as "bitmap" in the context of the claim itself or construed as the entire phrase "a bitmap indicating which power headroom reports are being reported," Defendants' construction clarifies the meaning of bitmap for jurors while avoiding the confusion and duplication that Plaintiff's construction would create.

2. "bits for power headroom reports for a plurality of [the] secondary cells"

Claims	Defendants' Proposal	Plaintiff's Proposal
13, 21	"bits for power headroom reports for a plurality of secondary cells in a configuration such that a single bit in the bitmap does not correspond to a single secondary cell"	No construction necessary.

When prosecuting the '556 patent, the inventors overcame prior art and in the process disclaimed claim scope concerning "bits for power headroom reports for a plurality of [the] secondary cells." Defendants' construction would prevent Plaintiff from recapturing subject matter that the inventors surrendered during prosecution. *Graham,* 383 U.S. at 33 ("Claims that have been narrowed in order to obtain the issuance of a patent by distinguishing prior art cannot be sustained to cover that which was previously by limitation eliminated from the patent.").

As discussed in Defendants' technology tutorial, using multiple cells (or carriers) to transmit information from terminal to base station requires reporting power headroom reports for ***both*** the primary cell ***and*** the additional cells. (Def. Tutorial at 33-36).

Claims 13 and 21 of the '556 patent discuss that part of the process for "preparing the power headroom report control element" is to "prepar[e] the bitmap to include bits for power headroom reports for a plurality of [the] secondary cells."

On May 23, 2014, original claims 1, 9, and 17 were rejected as being anticipated by prior art reference, Zhang (U.S. Pub. No. 20110243016) (Ex. 8). At the time, claims 1, 9, and 17 all recited "processing the received power headroom report control element." Claims 13 and 21 recited user equipment/apparatuses configured to practice the methods/systems recited in claims 1, 9 and 17. They were rejected under separate grounds.

Figure 23 of Zhang is reproduced below (left). As highlighted in the top red box, a ***single bit*** (*e.g.*, C1, C2, or C3) is utilized to indicate the power headroom reports for a plurality of secondary cells (SCell) (bottom red box – 4 SCells). Notably, Plaintiff's infringement contentions accuse the ***exact*** same bitmap of infringing this element of claim 13. (Ex. 9, *e.g.*, Exhibit C at 10) (below right, Figure 6.1.3.6a-2: Extended Power Headroom MAC Control Element).

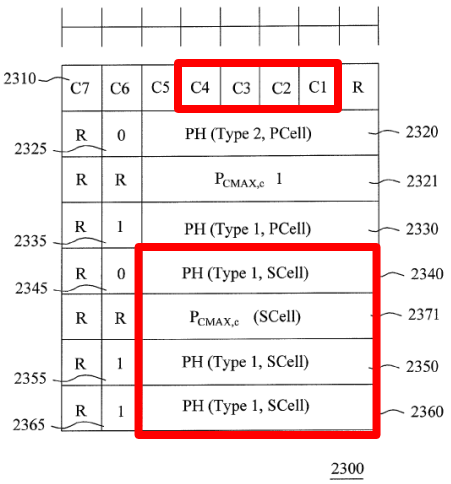
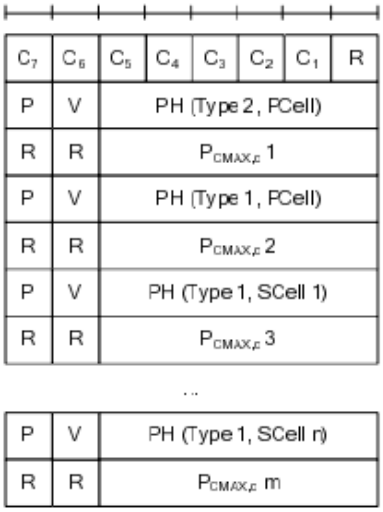


FIG. 23



In response to the rejection of claims 1, 9, and 17, the inventors amended, *inter alia*, claim 1 to include the limitation "processing the received power headroom report control element by processing the bitmap to ***include bits for power headroom reports for a plurality of secondary cells***." The inventors also added nearly identical language—including the disputed limitation—to claims 13 and 21 even though these claims were not explicitly rejected over Zhang. (Ex. 10, 7/15/2014 Amendment at 4-5, 7).

The inventors argued that this amendment overcame Zhang because, "Zhang does not disclose 'processing the received power headroom report control element by processing the bitmap to include bits for power headroom reports for a plurality of secondary cells.'" (Ex. 10, 7/15/2014 Response and Remarks at 10). In response to this amendment and corresponding argument, the Examiner allowed all of the claims. (Ex. 17, 8/6/2014 Notice of Allowance).

Given this clear argument as to the difference between Zhang and claims to "processing the received power headroom report control element by processing the bitmap to include ***bits for power headroom reports for a plurality of secondary cells***," the inventors unmistakably disclaimed any interpretation of "bits for power headroom reports for a plurality of secondary cells" that covers the particular arrangement that Zhang used to indicate power headroom reports for each of a plurality of secondary cells. *See, e.g.*, *N. Am. Container*, 415 F.3d at 1345 (affirming construction of "generally convex" to exclude any concave points: "To overcome an obviousness rejection, the applicant distinguished his invention from the [prior art] on the basis of the latter disclosing inner walls that are "slightly concave."); *BENQ*, 533 F.3d at 1369–70 (relying on prosecution history to construe term "syllabic element" as excluding letter groups have any number of syllable, and limiting term to a one-syllable letter group where to gain allowance patentee amended claim to add requirement of "syllabic element" and canceled rejected claims that covered words, the court ruling that if the patentee's construction were adopted it would yield a "nonsensical result" because the claim would read on the prior art reference it was amended to distinguish over); *Luma Corp. v. Stryker Corp*., 2008 WL 1013484, *4 (Fed. Cir. 2008) (nonprecedential) ("Given that claim 22 that was limited to text was rejected as anticipated while claim 24 that was limited to graphical objects was not, the examiner clearly understood graphical objects not to include text alone. The patentee acquiesced in that understanding by amending his claims . . . [T]he district court correctly construed the limitation 'graphical objects' to **exclude** text alone.")

As show in Figure 23, Zhang uses ***a single bit*** to indicate a power headroom report for each secondary cell. Given the inventors' successful argument that Zhang ***does not disclose*** "***bits*** for power headroom report for a plurality of secondary cell," this limitation must ***exclude*** the FIG. 23 embodiment of Zhang, in which a single bit corresponds to each secondary cell.[14]

[14] Though Defendants have proposed a construction that attempts to capture this disclaimer of claim scope, the critical point is that the disputed claim term be interpreted to ***exclude*** Zhang. Alternate constructions that achieve this result would be acceptable.

The disclaimer confirms Defendants' construction of "bits for power headroom reports for a plurality of secondary cells ***in a configuration such that a single bit in the bitmap does not correspond to a single secondary cell***."

It is immaterial that the claim amendments arose from a rejection of claims 1, 9, and 17 (system claims) rather than claims 13 and 21 (user equipment claims). The inventors elected to amend ***all*** of the claims to include near-identical language. *PODS, Inc. v. Porta Stor, Inc.*, 484 F.3d 1359, 1366–67 (Fed. Cir. 2007) (applying "presumption that the same terms appearing in different portions of the claims should be given the same meaning"). Further, "arguments made during prosecution regarding the meaning of a claim term are relevant to the interpretation of that term in every claim of the patent absent a clear indication to the contrary." *Southwall Techs., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1579 (Fed. Cir. 1995); *Desper Prods., Inc. v. QSound Labs, Inc.*, 157 F.3d 1325, 1337 (Fed. Cir. 1998). Here, Plaintiff offered no indication at all that the arguments concerning the added language were specific only to certain claims.

Likewise, it is immaterial that Defendants' construction does not cover all of the embodiments disclosed in the '556 patent specification. *N. Am. Container*, 415 F.3d at 1346 ("[T]he fact that claims do not cover certain embodiments disclosed in the patent is compelled when narrowing amendments are made in order to gain allowance over prior art.").

3. "secondary cells"

Claims	Defendants' Proposal	Plaintiff's Proposal
13, 21	serving cells/component carriers configured for a UE that are different from the primary serving cell	No construction necessary, other than to clarify that a primary cell is different than a secondary cell.

Consistent with its insistence that the jurors require no further guidance regarding claim terms directed to wireless communications, Plaintiff disputes the use of "serving cells/component carriers" in Defendants' construction of "secondary cells." (Br. at 19-20). Defendants' construction merely provides a definition of "secondary cells" that is consistent with the claims and specification, and with Plaintiff's own characterizations. For example, while describing secondary cells to this Court, Plaintiff uses the terms "component carriers" and "serving cells."

(*See id.* at 17-18 ("[t]hese '***component carriers***' may include a primary carrier provided on the 'primary serving cell,' and up to four more secondary ***carriers*** provided on 'secondary ***serving cells***.'"); *see also id.* ("[t]he '556 Patent discloses an improvement related to the timing and generation of power headroom reports in the context of multiple ***component carriers***. Rather than sending multiple, separate power headroom reports for each ***component carrier*** . . .")).

Thus, Plaintiff itself refers to secondary cells as component carriers or secondary serving cells, but when Defendants propose to define "secondary cells" using these terms, complains that "Defendants' construction is misguided." (Br. at 20). Plaintiff's positions are irreconcilable and suggest that Plaintiff does not seek to define and clarify arcane technical terms to assist the jury. Instead, Plaintiff apparently seeks to avoid such clarity, leaving the claim language open-ended for the jury to decipher, notwithstanding controlling Federal Circuit authority (*e.g.*, *O2 Micro*, 521 F.3d at 1360) to the contrary.

Plaintiff also alleges (Br. at 20) that Defendants' proposed nomenclature of "serving cells/component carriers" is improper. But Plaintiff cites to a portion of the '556 patent specification——to "describe[] an embodiment that includes primary and secondary cells"—that describes secondary cells using the same terms as in Defendants' construction. (*Id.* at 19). For example, the '556 patent discloses:

> Depending on user equipment capabilities, secondary ***serving cells*** (SCells) can be configured to form, together with the PCell, a set of serving cells. In the downlink, the carrier corresponding to an SCell is a downlink secondary ***component carrier*** (DL SCC), while in the uplink it is an uplink secondary ***component carrier*** (UL SCC).

('556 patent at 4:32-46).

Thus, in view of Defendants' and Plaintiff's consistent characterization of the claimed term, a characterization that is also consistent with the specification of the '556 patent – the Court should adopt Defendants' construction of the term "secondary cells."

IV. MOTION FOR SUMMARY JUDGMENT THAT CERTAIN ASSERTED CLAIMS FROM EACH PATENT ARE INVALID AS INDEFINITE

Pursuant to the Court's order (D.I. 136) granting permission following the letter-briefing process, Defendants move for summary judgment that '966 patent claims 5-7 and 14-17, '556 patent claims 15 and 23, and '060 patent claim 15 are invalid as indefinite under 35 U.S.C. § 112 ¶ 2.

"A patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S.Ct. 2120, 2124 (2014). Whether a patent claim is definite enough to comply with § 112 ¶ 2 is a "legal conclusion that is drawn from the court's performance of its duty as the construer of the patent claims." *Datamize, LLC v. Plumtree Software*, 417 F.3d 1342, 1347 (Fed. Cir. 2005).

As set forth in the parties' letter briefs giving rise to this motion, there is no dispute that a POSA, reading the relevant intrinsic evidence, would be unable to discern the meaning and scope of the following claim terms. Plaintiff has failed to raise a factual dispute on this issue and Defendants are entitled to judgment of invalidity on the claims set forth below as a matter of law.

SUMMARY OF THE ISSUES

1. Whether claims 5-7 and 14-17 in the '966 patent are invalid as indefinite given the recited equation for initial transmit power P_{Msg3} of the third message for i=0.

2. Whether the term "accurate receipt" in claim 15 of the '060 patent is indefinite.

3. Whether the terms "type 1 power headroom report" and "type 2 power headroom report" in claims 15 and 23 of the '556 patent are indefinite.

SUMMARY OF UNDISPUTED FACTS

1. Claims 5-7 of the '966 patent depend upon claim 1. (*Id.* at 13:48-14:14)

2. Claims 6-7 of the '966 patent depend upon claim 5. (*Id.* at 13:63-14:14)

3. Claims 14-17 of the '966 patent depend upon claim 10. (*Id.* at 15:37-16:37).

4. Claims 15-17 of the '966 patent depend upon claim 14. (*Id.* at 16:11-37).

5. The term "accurate receipt" never appears in the '060 patent except in claim 15 itself. ('060 Patent).

6. In a wireless communication system, perfect fidelity (*i.e.*, confirming that every bit transmitted is the same as every bit received, without any bits being lost or transmuted from a 0 to 1 or vice versa) is not technically feasible without access to the original transmitted message. (Singer Decl. ¶ 78).

7. Multiple error detection systems and techniques are available for use in connection with digital communications. (Singer Decl. ¶ 85).

8. A given error detection system or technique in a wireless communication system provides confidence that the error rate is less than a specified level. (Singer Decl. ¶ 81).

9. The specified level varies depending on the particular system or technique chosen. (Singer Decl. ¶¶ 82-86).

10. In wireless communications, there can be no confirmation that receipt of a message is free from error without access to the original message. (Singer Decl. ¶¶ 78, 81).

11. In terminals of the types described in the '060 patent, an error can be introduced while the message is in transit from the base station to a terminal. (Singer Decl. ¶¶ 95-96).

12. In terminals of the types described in the '060 patent, an error can be introduced during the processing of the received signal at the terminal. (Singer Decl. ¶¶ 95, 97).

13. One of ordinary skill in the art would not have understood "Type 1" and "Type 2" power headroom reports as terms of art as of the claimed priority date of the '556 patent. (Singer Decl. ¶ 104).

14. The only relevant guidance regarding what is meant by "Type 1" and "Type 2" power headroom reports is given in the equations that appear in column 5 of the '556 patent, and the identical equations that appear in claims 16 and 24. ('556 patent; Singer Decl. ¶¶ 105-108).

A. Claims 5-7 and 14-17 of the '966 Patent Are Invalid as Indefinite Because They Are Ambiguous and Internally Inconsistent

Claims 5 and 14 of the '966 patent and their asserted dependent claims are invalid as indefinite because they are internally inconsistent and ambiguous. (D.I. 123-1 and D.I. 135-1.) Among other things, dependent claims 5 and 14 specify an equation (to calculate the "initial transmit power" of a third message) that does not adhere to the requirements specified by the independent claims, upon which they rely. Plaintiff has raised no factual dispute regarding this internal inconsistency, and Defendants are entitled to judgment that claims 5-7 and 14-17 are invalid as indefinite as a matter of law. Claims 5 and 14 (incorporating claims 1 and 10) require:

> using the processor to compute an initial transmit power for the uplink shared channel … ***wherein the initial transmit power depends on a preamble power of a first message sent on an access channel and the second power control adjustment state f(0)***;
> …
> wherein the second power control adjustment state f(i) for i=0 is initialized as:
>
> $$P_{0\_UE\_PUSCH} + f(0) = \Delta P_{PC} + \Delta P_{rampup}$$
>
> ….
> wherein the initial transmit power P_{Msg3} of the third message for i=0 is equal to:
>
> $$P_{Msg3}=\min\{P_{max} , P_{preamble} + \Delta_{0,preamble\_Msg3} + \Delta_{PC\_Msg3} + 10\log_{10}(M_{PUSCH(i)}) + \Delta_{TF}(TF(i))\} \ldots.$$

('966 patent at claim 1 (12:59-13:20), 5 (13:47-62), 10 (14:47-15:8), 14 (15:37-16:10)).

Per the express claim language, above, the independent claim requires the "initial transmit power" to "***depend[] on*** … the second power control adjustment state f(0)." Thus, a POSA would expect the dependent claims' equations for the "initial transmit power P_{Msg3}" to refer to the second power control adjustment state, *i.e.*, f(0) (or f(i) for i=0), in light of the requirement set forth in the independent claim. Here, the equations in claims 5 and 14 do not refer to f(0), rendering them inconsistent with the independent claims. (Singer Decl. ¶¶ 53-64).

The specification does not resolve this inconsistency; while it discusses the equation recited in claims 5 and 14, the discussion of that equation (and its variables) is also devoid of any reference to "the second power control adjustment state f(0)," which is unequivocally required by the independent claims. (*See* '966 patent 8:7-62; Equation [5]; Singer Decl. ¶¶ 65-66).

The European Patent Office (EPO) objected to this ambiguity during examination, stating that:

> [t]here is ***a contradiction between the wording*** of claim 1 for describing the initial transmit power of the uplink shared channel ***and the mathematical formula disclosed*** in claim 6 regarding the initial transmit power of the third message for i=0, because ***in said formula there is no mention to the second power control adjustment state f(0)***.

(Ex. 12 ("International Preliminary Report on Patentability" from the International Searching Authority), at 4, Item VIII, para. 1; Ex. 13 ("Communication pursuant to Rules 161 and 162 EPC" from the European Patent Office) at 1.)

Following this finding, the applicant cancelled the inconsistent claims in question. (*See* Ex. 14 ("Amendments Received Before Examination" from Applicant), at 1 ("claim 6 and claims depending from claim 6 have been deleted.")).

Plaintiff does not refute the above factual contentions. Instead, Plaintiff relies on (i) Kyocera's Petition for *Inter Partes* Review (IPR) and (ii) the "substitution method" as evidence that the claims are not indefinite. This reliance is misplaced.

First, Plaintiff mischaracterizes the testimony of Kyocera's expert in the IPR. Kyocera's expert stated that "[T]he equation in claim 5 can be rewritten with the $P_{preamble}$ variable expanded per Equation 3 of the '966 patent." (Ex. 15 (relevant excerpts of Kyocera's Petition for *Inter Partes* Review of the '966 patent) at 19). Whether the equation in claim 5 ***can*** be rewritten in a particular manner does not suggest that a POSA would understand that the claimed equation was meant to be rewritten in that manner, and therefore does not render the claim definite. The claim construction inquiry is separate from the indefiniteness doctrine. *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1251 (Fed. Cir. 2008) ("Even if a claim term's definition can be reduced to words, the claim is still indefinite if a person of ordinary skill in the art cannot translate the definition into meaningfully precise claim scope"). The fact that one of the Defendants proposed a construction ***in an IPR*** does not mean the term is definite. Among other things, parties cannot raise indefiniteness issues in an IPR proceeding and must therefore apply some construction, even if it may not conform to the reasonable certainty requirement of § 112.

See In re Cuozzo Speed Techs., LLC, 793 F.3d 1268, 1289 (Fed. Cir. 2015) (dissent explaining that IPR "broadest reasonable construction" is inconsistent with § 112).

Second, Plaintiff admitted that to give meaning to the equations for P_{Msg3} in claims 5 and 14, one has to substitute Equation [3] from the specification as an expression for $P_{preamble}$. (*See* D.I. 129-1 at 3.) However, this substitution is impermissible because it rewrites the claims and there is no evidence to suggest that a POSA would understand that the substitution should be performed. There is no antecedent basis in claims 5 or 14 or in independent claims 1 and 10 for limiting the term $P_{preamble}$ to the expression recited in Equation 3. Indeed, undisputed testimony from Defendants' expert establishes that a POSA would not have known that a substitution would be required or what the substitution should be. (*See* Singer Decl. ¶¶ 66-68). Merely because one skilled in the art might perform such a substitution does not mean the claims must be limited in this way. Plaintiff's argument that the claims are definite if a substitution is performed is akin to the argument that a claim is definite if it is amenable to construction. In *Nautilus*, the U.S. Supreme Court expressly rejected such an approach: the ability to ascribe at least some meaning to a claim term does not meet the statutory test for precision; rather, "the definiteness inquiry trains on the understanding of the skilled artisan at the time of the patent application . . . ." *Nautilus, 134* S. Ct. at 2130. Applying the proper standard, because one of skill in the art would not understand the scope of the claims with reasonable certainty, the claims are indefinite. *Id.*

B. Claim 15 of the '060 Patent Is Invalid Because the Intrinsic Record Provides No Objective Standard from which to Determine What Constitutes "Accurate Receipt" in the Context of the Patent

Claim	Defendants' Proposal	Plaintiff's Proposal
15	Indefinite.	Not construction necessary. Not indefinite.

Claim 15 of the '060 patent requires a terminal with a processor that is configured to "switch to a broadcast mode for receiving broadcast content on a broadcast channel only if the paging message received from the base station includes the at least one specific identifier … without waiting to confirm ***accurate receipt*** of an emergency warning message."[15]

Claim 15 is indefinite because there are no "objective boundaries" allowing a POSA to determine what constitutes "accurate receipt." *See, e.g.*, *Interval Licensing v. AOL*, 766 F.3d 1364, 1371 (Fed. Cir. 2014) (affirming indefiniteness: "The claims, when read in light of the specification and the prosecution history, must provide objective boundaries for those of skill in the art."); *Nexus Display Techs. LLC v. Dell Inc.*, 2015 WL 5578735, *8 (E.D. Tex. Sept. 22, 2015) (holding that "closely matching the auxiliary data rate" was indefinite because the record failed to "provide any indication how 'close' the data rate must be matched"); *Adv. Display Techs. of Texas v. AU Optronics Corp.*, 2012 WL 2872121, *15 (E.D. Tex. July 12, 2012) (granting summary judgment of indefiniteness because record "fail[ed] to provide an objective standard to determine whether a bump is 'smooth'").

The term "accurate receipt" never appears in the '060 patent except in claim 15 itself. Nor does the file history address the meaning of the phrase. Accordingly, the intrinsic record offers no indication what "accurate receipt of an emergency warning message" means. Without any intrinsic guidance, two separate uncertainties render "accurate receipt" indefinite.

[15] The relevant technology for the portion of this claim is described in Defendants' technology tutorial slides 10 and 16.

1. "Accurate Receipt" is a Term of Degree, Yet the Patent Never Discloses the Necessary Degree of Accuracy Required to Qualify

First, "accurate receipt" is a term of degree as used in the field of digital communications. (Singer Decl. ¶ 77). When a message is sent in wireless communications, perfect fidelity (*i.e.*, confirming that ever bit transmitted is the same as every bit received, without any bits being lost or transmuted from a 0 to 1 or vice versa) is not possible. (Singer Decl. ¶ 78).

At best, a system of error detection can only provide confidence that the error rate in the received data is less than a specified level. (Singer Decl. ¶¶ 81, 90). When designing a system of error detection, those knowledgeable in the field consider how accurate the system should be given a particular application. (Singer Decl. ¶ 79). This decision involves tradeoffs; increasing accuracy (*i.e.*, decreasing the error rate) decreases network performance (*e.g.*, speed , bandwidth, etc.). (Singer Decl. ¶¶ 82-86). Thus, for applications with limited resources, a lower degree of accuracy (higher error rate) is often accepted as necessary to enable communications.

Despite these tradeoffs, the '060 patent never discloses the degree of accuracy required to qualify as "accurate receipt." *Cf. Halliburton*, 514 F.3d at1256 (holding that "fragile gel" was indefinite because, without guidance from the specification, "it is ambiguous as to the requisite degree of the fragileness of the gel"); *Nexus*, 2015 WL 5578735 at *8 ("[A] person of ordinary skill in the art would not know whether data rate differences of 1–bit per second (bps) or 1–megabit per second (Mbps) are 'closely matching.'"); *Adv. Display Techs.*, 2012 WL 2872121 at *14 (granting summary judgment that "smooth bumps" was indefinite because the "specification fails to provide any objective anchor to determine *how* smooth the bumps must be to facilitate" the function they were supposed to serve) (emphasis original).

Without an "objective anchor" indicating the degree of accuracy required, claim 15 is indefinite. It is not enough that a skilled artisan could arrive at a ***possible*** approach. *Dow Chem. Co. v. Nova Chems. Corp.*, 803 F.3d 620, 634 (Fed. Cir. 2015) ("Before *Nautilus*, a claim was not indefinite if someone skilled in the art could arrive at a method and practice that method . . . . Under *Nautilus* this is no longer sufficient.").

Moreover, Plaintiff's own extrinsic evidence confirms the ambiguity inherent in the word "accurate." Plaintiff's letter brief opposing summary judgment briefing cited a dictionary (Ex. 16) that provides that "accurate" means: "able to give an accurate result [an ~ gauge]." While circular, this definition seems to permit less than exact precision so long as the result is within an acceptable range. (*See* Ex. 16 (Merriam Webster's Collegiate Dictionary (10th Ed., 1999)) at 8). Defendant's expert finds this definition to be most applicable to the wireless context, because the accuracy of the system can be tuned to the application. (Singer Decl. ¶ 89). By contrast, the definition that Plaintiff selectively cited during the letter briefing process (*i.e.*, "free from error esp. as the result of care [an ~ diagnosis]") (D.I. 129-1 at 1) is inapplicable to the wireless context because there can be no transmission that can be verifiably free from error. (Singer Decl. ¶¶ 90-92). An "accurate diagnosis" (*e.g.*, confirming that a patient has the flu and not the Ebola virus) has nothing to do with "accurate receipt" of a digital message.

2. The '060 Patent Never Specifies a Frame of Reference to Assess the Degree of Accuracy

Second, in a system described in the '060 patent, there are at least two frames of reference against which the accuracy of receipt could be measured. For one, an error can be introduced when the message is in transit from the base station to the terminal. (Singer Decl. ¶¶ 94-96). This error would cause a mismatch between the message transmitted and the message received at the terminal, *i.e.*, the transmitted message was not received accurately. (Singer Decl. ¶ 96). Alternatively, an error could be introduced by the processing of the message as it is received by the terminal. (Singer Decl. ¶ 97). In this case, the receipt itself would not be accurate. (Singer Decl. ¶ 97).

Given the lack of intrinsic evidence, it would be impossible for a POSA to know which frame of reference claim 15 contemplates.

In its letter brief opposing summary judgment briefing, Plaintiff argued that the accuracy of the receipt should be judged by comparing the message transmitted by the base station and the message received at the terminal because, it claims "the plane of communication" is between the

terminal and the base station. (D.I. 129-1 at 1). This argument fails because it does not consider that "accurate receipt" can be relative to the transmitted message or can refer to processing receipt of the message. (Singer Decl. ¶¶ 98-100). Without any "objective boundary" between these two frames of reference, the '060 patent fails to provide a POSA with reasonable certainly as to the scope of claim 15.

C. Claims 15 and 23 of the '556 Patent Are Invalid Given the Mismatch Between the Specification and Principles of Claim Differentiation, Making It Uncertain What the Claims Mean by "Type 1" and "Type 2" Power Headroom Reports

Claim	Defendants' Proposal	Plaintiff's Proposal
15	Indefinite; If not indefinite: "type1 power headroom report" should be construed as "a power headroom report computed as: P_cmax,c minus PUSCH power" "type 2 power headroom report" should be construed as "a power headroom report computed as: P_cmax,c minus PUCCH power minus PUSCH power"	No construction necessary, other than to clarify that a Type 1 power headroom report is different than a Type 2 power headroom report. Not indefinite.

As discussed above, the '556 patent concerns "power headroom" reporting. (*See also* Def. Tutorial at 30, 37). Claims 15 and 23 refer to a power headroom report control element that includes at least one of a "type 1 power headroom report" and a "type 2 power headroom report." Dependent claims 16 and 24 depend from claims 15 and 23, and specify particular equations for computing "type 1" and "type 2" power headroom reports. Claims 15 and 23 are indefinite because a POSA would not understand how independent claims 15 and 23 are broader than dependent claims 16 and 24.

During the letter briefing process, Defendants cited two facts that Plaintiff did not dispute: (1) "type 1" and "type 2" power headroom reports were not terms of art at the relevant time; a POSA instead would have needed to rely solely on the '556 specification to understand the meaning of these terms. (Singer Decl. ¶ 104), and (2) the only relevant guidance is a passage (5:36-41) reciting the exact equations that also appear in dependent claims 16 and 24. (Singer Decl. ¶¶ 105-108).

Defendants proposed an alternative to indefiniteness: construing "type 1 power headroom report" and "type 2 power headroom report" in claims 15 and 23 based on the equalizations that appear in the corresponding dependent claims 16 and 24. However, Plaintiff rejects this proposal, insisting that claims 15 and 23 are broader. Yet Plaintiff's purported "clarification" would recast "type 1" reports as a "first type" of report and "type 2" as a "second type" of report, meaning that the only limitation on the two terms is that they be different. Plaintiff's expansive approach would render these proper nouns (*i.e.*, "type 1" and "type 2") superfluous. Claims 15 and 23 both require that the power headroom report control element includes "at least one of: a type 1 power headroom report for a primary serving cell and a type 2 power headroom report for the primary serving cell." Under Plaintiff's theory that type 1 or type 2 reports merely need to be different, the inventors could just as easily have claimed "at least one power headroom report for the primary serving cell" without changing the scope of claims 15 and 23. Yet "claims are interpreted with an eye toward giving effect to all terms." *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006).

Plaintiff's inability to propose a construction that gives meaning to "type 1" and "type 2" confirms that the Court can and should rule claims 15 and 23 are invalid as indefinite. *E.g.*, *GE Lighting Solutions, LLC v. Lights of America, Inc.*, No. 12-cv-3131, 2015 WL 4660975 (N.D. Ohio Aug. 5, 2015) (holding that "to heat sink" was indefinite after patent owner failed to propose a construction with any boundaries); *Skyhook Wireless, Inc. v. Google, Inc.*, No. 10-cv-11571, 2012 WL 4076180, *14 (D. Mass. Sept. 14, 2012) ("Since such a construction would render the term superfluous, and the court is left with no alternative construction, the term is insolubly ambiguous and therefore indefinite.").

In essence, Plaintiff argues that the term it made up to mean one thing—a report calculated a specific way—could mean anything. It does not. To the extent the term is broader than the disclosure in the specification, it is indefinite.

V. CONCLUSION

For the foregoing reasons, Defendants respectfully request adoption of their proposed constructions for the foregoing disputed terms of the ’966 patent, ’556 patent, and ’060 patent terms and respectfully request summary judgment that ’966 patent claims 5-7 and 14-17, ’556 patent claims 15 and 23, and ’060 patent claim 15 are invalid as indefinite.

Dated: November 9, 2015

Respectfully submitted,

/s/ Michael N. Rader
Richard L. Wynne
Texas State Bar No. 24003214
richard.wynne@tklaw.com
THOMPSON & KNIGHT LLP
One Arts Plaza
1722 Routh St., Suite 1500
Dallas, TX 75201
Telephone: (214) 969-1386
Facsimile: (214) 880-3267

Michael N. Rader (pro hac vice)
Charles T. Steenburg (pro hac vice)
Chelsea A. Loughran (pro hac vice)
W. Brett Morrison (pro hac vice)
mrader@wolfgreenfield.com
csteenburg@wolfgreenfield.com
cloughran@wolfgreenfield.com
wmorrison@wolfgreenfield.com
WOLF, GREENFIELD & SACKS, P.C.
600 Atlantic Avenue
Boston, MA 02210-2206
Telephone: (617) 646-8000
Facsimile: (617) 646-8646

ATTORNEYS FOR DEFENDANT SONY MOBILE COMMUNICATIONS (USA) INC.

/s/ Melissa R. Smith
Melissa R. Smith
State Bar No. 24001351
GILLAM & SMITH, LLP
303 S. Washington Ave.
Marshall, TX 75670
Phone: (903) 934-8450
Fax: (903) 934-9257
melissa@gillamsmithlaw.com

John C. Hueston
Alex C. D. Giza
Douglas J. Dixon
HUESTON HENNIGAN LLP
620 Newport Center Dr., Ste. 1300
Newport Beach, CA 92660
Phone: (949) 229-8640
JHueston@hueston.com
AGiza@hueston.com
DDixon@hueston.com

ATTORNEYS FOR T-MOBILE USA, INC. AND T-MOBILE US, INC.

/s/ Christopher W. Kennerly
Christopher W. Kennerly
TX Bar No. 00795077
chriskennerly@paulhastings.com
Jonas P. Herrell
CA Bar No. 279075
jonasherrell@paulhastings.com
Paul Hastings LLP
1117 S. California Ave.
Palo Alto, CA 94304-1106
Telephone: (650) 320-1800
Facsimile: (650) 320-1900

Jeffrey D. Comeau
CA Bar No. 259679
jeffreycomeau@paulhastings.com
PAUL HASTINGS LLP
4747 Executive Drive
Twelfth Floor
San Diego, CA 92121-3114
Telephone: (858) 458-3000
Facsimile: (858) 458-3005

Trey Yarbrough
TX Bar No. 22133500
trey@yw-lawfirm.com
Dallas William Tharpe
TX Bar No. 24052036
YARBROUGH WILCOX, PLLC
100 E. Ferguson St., Suite 1015
Tyler, Texas 75702
Telephone (903) 595-3111
Facsimile (903) 595-019

ATTORNEYS FOR DEFENDANT AT&T MOBILITY LLC

/s/ Michael E. Jones
Michael E. Jones
State Bar No. 10929400
Patrick C. Clutter, IV
State Bar No. 24036374
mikejones@potterminton.com
patrickclutter@potterminton.com
Potter Minton, P.C.
110 N. College Ave., Suite 500
Tyler, Texas 75702
Tel: (903) 597-8311
Fax: (903) 593-0846

Charles B. Molster, III
Virginia State Bar No. 23613
Thomas M. Dunham
D.C. Bar No. 448407
Corrine M. Saylor
D.C. Bar No. 997638 (Pro Hac Vice)
cmolster@winston.com
tdunham@winston.com
csaylor@winston.com
WINSTON & STRAWN LLP
1700 K Street, N.W.
Washington, D.C. 20006-3817
Tel: (202) 282-5000
Fax: (202) 282-5100

Sarah J. Kalemeris
IL Bar No. 6303644
skalemeris@winston.com
WINSTON & STRAWN LLP
35 W Wacker Drive
Chicago, IL 60601
Tel: (312) 558-5600
Fax: (312) 558-5700

ATTORNEYS FOR CELLCO PARTNERSHIP D/B/A/ VERIZON WIRELESS

/s/ Mark McGrory
Mark McGrory (*pro hac vice*)
Megan J. Redmond
Carrie A. Bader
ERISE IP
6201 College Boulevard, Suite 300
Overland Park, KS 66211
Office: 913-777-5600
Fax: 913-777-5601
Mark.mcgrory@eriseip.com
Megan.redmond@eriseip.com
Carrie.bader@eriseip.com

Robert W. Weber
Texas State Bar No. 21044800
SMITH WEBER, L.L.P.
5505 Plaza Drive
P.O. Box 6167
Texarkana, TX 75505-6167
Tele: (903) 223-5656
Fax: (903) 223-5652
Email: bweber@smithweber.com

ATTORNEYS FOR SPRINT SOLUTIONS, INC., SPRINT SPECTRUM, LP, BOOST MOBILE, LLC

/s/ Jose L. Patiño
Jose L. Patiño (CA Bar No. 149568)
jpatino@foley.com
Christopher C. Bolten (CA Bar No. 268284)
cbolten@foley.com
Wendy W. Cheung (CA Bar No. 285802)
wcheung@foley.com
FOLEY & LARDNER LLP
3579 Valley Centre Drive, Suite 300
San Diego, CA 92130-3302
Telephone: 858.847.6700
Facsimile: 858.792.6773

Cynthia J. Rigsby (WI Bar No. 1025479)
crigsby@foley.com
Michelle A. Moran (WI Bar No. 1073953)
mmoran@foley.com
FOLEY & LARDNER LLP
777 E. Milwaukee Avenue
Milwaukee, WI 53202-2400
Telephone: 414.271.2400
Facsimile: 414.297.4900

ATTORNEYS FOR DEFENDANT KYOCERA COMMUNICATIONS, INC.

/s/ Jaime B. Beaber
Jamie B. Beaber (D.C. Bar No. 484186)
Michael W. Maas (D.C. Bar No. 493685)
Kfir B. Levy (D.C. Bar No. 9891212)
MAYER BROWN LLP
1999 K Street, N.W.
Washington, DC 20006-1101
Telephone: (202) 263-3000
Facsimile: (202) 263-3300
jbeaber@mayerbrown.com
mmaas@mayerbrown.com
klevy@mayerbrown.com

Allen F. Gardner
State Bar No. 24043679
POTTER MINTON P.C.
110 N. College Avenue, Suite 500
Tyler, Texas 75702
Telephone: (903) 597-8311
Facsimile: (903) 593-0846
allengardner@potterminton.com

ATTORNEYS FOR LG ELECTRONICS, INC. AND LG ELECTRONICS U.S.A., INC.

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing document was filed electronically in compliance with Local Rule CV-5 on this November 9, 2015. As of this date all counsel of record have consented to electronic service and are being served with a copy of this document through the Court's CM/ECF system under Local Rule CV-5(a)(3)(A).

/s/ Michael N. Rader
Michael N. Rader